REMARKS/ARGUMENTS

Applicants thank the examiner for carefully examining the present application. With entry of this paper, Claims 1, 2, 26, 38, 39, and 41-53 remain. Claims 1, 38, 41, 43, and 50 have been amended. Claims 3-25, 27-37, 40, and 54-156 have been canceled. No new matter has been introduced.

35 U.S.C. §103 Rejections

The examiner rejects Claims 1-2, 4-6, 24, 26-27 29, and 50-53 as being unpatentable over EP 456441 A1 (Chung) in view of U.S. Patent No. 2,593,943 (Wainer) or U.S. Patent No. 6,555,051 (Sakata). Applicants have amended Claim 1 to recite limitations not taught or suggested by the cited combinations of prior art. In particular, currently amended Claim 1 recites, in part, that the feedstock includes the particular polymers ethylene vinyl acetate (EVA) or polyethylene (PE) mixed with particular aromatic binders. Chung in combination with either Wainer or Sakata does not teach the inclusion of either EVA or PE. Furthermore, it is not obvious to substitute other polymers, specifically those taught by Chung, with EVA or PE.

Regardless of the composition ranges, Chung does not teach or suggest that the polymer is EVA, polyethylene, or both as the currently amended Claim 1 recites. It is not obvious to substitute EVA and/or polyethylene with another polymer for reasons provided by Kevin L. Simmons in his attached declaration.

Summarizing briefly Dr. Simmons' declaration, the teachings of Chung are significantly different from the currently claimed invention. The particular use of relatively small amounts of ethylene vinyl acetate (EVA) and/or polyethylene (PE) is significant in the claimed invention

and, therefore, EVA and PE cannot be substituted with just any other polymer while retaining the benefits of the claimed invention. This was not obvious to the inventors prior to the invention.

One characteristic that makes EVA and PE significant to the claimed invention is their **immiscibility** in the aromatic binders of the composition as recited in currently amended Claim 1. The use of the immiscible EVA and/or PE polymers unexpectedly resulted in the ability to significantly reduce the amount of polymeric constituent in the binder without a comparable loss in green body strength. This is important because while the aromatic binder constituent can be efficiently removed by sublimation, the polymeric constituent must be removed by thermal decomposition. Thermal decomposition has a high potential of leaving behind residual carbon in the final sintered part, which is deleterious to the mechanical properties. Therefore it is important and beneficial to minimize the amount of polymer in the feedstock composition.

Chung not only fails to teach or suggest the use of immiscible EVA and PE, but explicitly states that the low molecular weight chemical acts as a solvent for the specific polymer. In fact, Chung coins the term "solid polymer *solution*" to denote that suitable polymers should be miscible in the low molecular weight chemical. One of the examples described in Chung is that of polystyrene that is **dissolved** in various chemicals including naphthalene. The examiner has rightly noted that "the essential criterion for the chemical solvent is mutual solubility with the polymer…" (Office Action, page 3). This is an explicit teaching away by Chung from the present invention as recited in currently amended Claim 1.

Furthermore, thermal gravimetric analysis (TGA) data for EVA compared to TGA data from other polymers (see attached figures comparing EVA and polystyrene) suggests that simple substitution of one polymer for another in the feedstock composition is not feasible and/or appropriate. The TGA curve of EVA exhibits a "step" that is most likely attributed to cross

linking of the EVA as the temperature increases during burnout. When the EVA cross links, the rate of weight loss decreases because the polymers become "more strongly" bound. When applied to the feedstock composition, the behavior of EVA can mean that green/brown strength can be higher through burnout/anneal steps relative to feedstocks using other polymers. Not all polymers exhibit the cross-linking behavior that is believed to occur in the claimed composition and method of the present invention and that provides the advantages of the present invention. Accordingly, the polymers recited in the present application are distinct from those of Chung, even when combined with Wainer or Sakata.

For at least the reasons described above and in the attached declaration, currently amended Claim 1 is allowable. Furthermore, the claims that depend from Claim 1 are also allowable for at least the reasons discussed above with respect to the independent claims as well as for their own respective features, which are neither shown nor suggested by the cited art.

The examiner has also rejected Claims 1, 2, 4 ,5 ,6, 24, 26, and 27 under 35 USC §103(a) as being obvious over USP# 3,302,073 (Broodo), over JP06-002011, or over USP# 3,330,892 (Hermann) in view of Wainer. The examiner further rejects Claims 29, 33-35, 37-39, 41-49, and 153-156 as being unpatentable over Hermann in view of Wainer. Applicants have amended Claim 1 to include limitations previously recited in dependent claims. Specifically, amended Claim 1 now recites, in part, "a composition comprising a metal powder, a polymer, and an aromatic binder, wherein said metal powder comprises an elemental metal that is a getter material, **said polymer is ethylene vinyl acetate (EVA), polyethylene, or both**, and said aromatic binder is benzene, naphthalene, anthracene, pyrene, phenanthrenequinone, or a combination thereof." Such amendments make the claims in the present application consistent with the claims in the related European Patent (EP 1722910), which was granted on November

26, 2008 and has now issued. None of the cited references teaches or suggests EVA, and/or polyethylene as a component of the feedstock. Furthermore, this amendment is not obvious in view of the cited art for reasons described above and provided by Kevin L. Simmons in the attached Declaration.

Finally, the examiner has rejected Claims 50-51 and 152-153 as being unpatentable over Chung and Wainer or Sakata or Hermann and Wainer or Sakata and further in view of USP# 3,418,113 (Rao). Claims 50 and 51 have been amended to depend from Claim 1 and are allowable for at least the reasons described above regarding Claim 1. Furthermore Claims 50 and 51 are allowable for their own respective features, which are neither shown nor suggested by the cited art. Claims 152 and 153 have been canceled and the rejection is moot. Issuance of a Notice of Allowance is kindly requested.

Double Patenting Rejection

The examiner has provisionally rejected Claims 1, 2, 4-6, 24, 26-27, 29-30, 38-39, 41-49, 152, and 156 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-10, 21-29, and 36 of copending application No. 11/601,421. The applicants respectfully disagree and believe that the rejection is improper. According to MPEP 804.01, a prohibition against holdings of double patenting applies to requirements for restriction between related subjects, namely, between process and product made by such process. The present application recites composition claims. Application no. 11/601,421 recites method of making claims and was filed in response to a restriction requirement made on July 18, 2005. Accordingly, the applicants kindly request withdrawal of the provisional double-patenting rejection.

Conclusion

For the reasons recited above, the application is believed to be in condition for allowance. Therefore, Applicants respectfully request that a timely Notice of Allowance be issued in this case. No additional claim fees are believed to be due. However, should such fees exist, or if any additional fees may be required in connection with filing this amendment and any extension of time, the Director is hereby authorized to charge our Deposit Account No. 02-1275.

DATED this 5th day of October, 2009.

Very respectfully,

/Allan C. Tuan/

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